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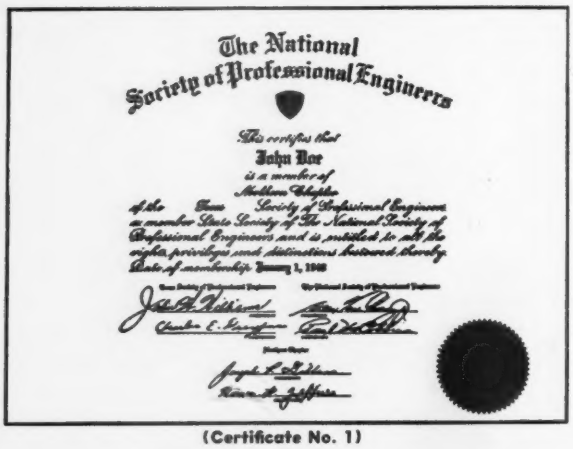

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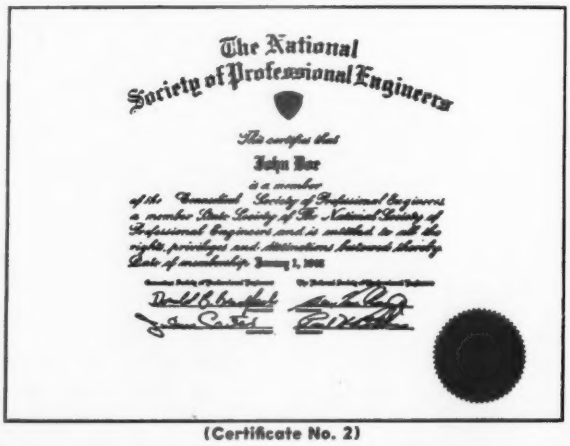

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Carnegie Tech Head Asks Third Plank For More Effective Professional Education

By ROBERT E. DOHERTY
President, Carnegie Institute of Technology

Under the American system, professional men largely set the fundamental pattern of national life. The character of that pattern depends not alone upon their technical ability, nor yet upon whatever ability they may have in dealing with human and social situations; it also depends—depends critically—upon their attitudes, upon the way they look at things.

These attitudes have some of their principal roots in value judgments; and these judgments, in turn, depend critically—or perhaps I should say *can* depend critically — u p o n education. Therefore any program for the development of an engineer, or of any other professional man for that matter, must recognize this fact or else fall far short of what I believe is now required for an enduring America. In other words, the ends toward which abilities are used are just as important in determining the outcome in national life and individual life as the abilities themselves, and those ends are determined when values are adopted.

Hence recognition of the critical role of value judgments and therefore of the importance of cultivating intelligent procedure in arriving at them are educational "musts" of the first order.

I hope I may assume that the general thesis I have stated needs little elaboration, although perhaps I should discuss some parts of it. A word of definition may be in order. It may be asked, what is meant by the term, "professional men," in the sense I have used it. I refer to men whose practice involves—or should involve—the application of a body of higher learning: lawyers, engineers, physicians, ministers, businessmen, industrial leaders, etc. I may be close to the fringe when I include business and industrial leaders. But certainly these fields are at least semiprofessional now and are on the road to becoming truly professional.

Includes Labor Leaders

And if among industrial leaders I include top-level labor leaders, as I do, I may be accused of being out of bounds. I can only say that if they are not professional men, they should be, because their responsibilities are professional in character; and as time goes on I believe that such leaders as are not must ultimately be replaced by men who are. All of these components constitute the group I have called professional men, who by the decisions they make day-by-day, year-by-year, determine local and national trends, and thus the pattern of national life.

I have said that the character of the pattern of national life depends not only upon the ability but also upon the attitude of professional men. A member of any practicing profession deals with practical situations that involve, whether he recognizes them or not, human and social elements as well as technical. The ability to understand and cope with all these elements to a degree commensurate with their importance in the situation, and the ability to point the solution toward proper ends, must, I assume, be taken for granted.

But to develop these abilities involves extremely difficult educational problems—much more difficult than they are generally thought to be, even by many educators themselves, especially those who have not tried to do so. For these problems are not solved by telling the students wht we know; they involve the development of analytical and creative ability, and also the cultivation of an intelligent attitude which will determine in a large measure the ends toward which such abilities will be directed.

There is another point about the general thesis. In urging the importance of values as a foundation of attitude, I need not dwell upon its other foundations. Certainly, family climate and traditions, including religious and political affiliations, and also the school program and the mores in which one is reared before college, all weigh heavily in one's attitudes, and in professional men all the more so in the degree to which formal attention to values is omitted from college education. The earlier influences become dominant in the absence of the other.

By and large the evidence is that the freshman enters college with little or no recognition or understanding, let alone appreciation, of the values he has adopted, willy-nilly, or of the other factors I have mentioned which together with values determine his attitudes. Moreover, there is ample evidence within my own observation and experience that in engineering when the student graduates from college, his recognition or understanding of the role of values in his life is little, if any, better than it was when he entered.

Fault of Present Approach

Indeed, outside of the ministry, I have seen little evidence that the other professions are any better off in this respect than engineering. Hence I say again that to the extent that attention to values is omitted in college, to that extent the unidentified traditions and mores take over; they become a decisive part of the individual and determine his attitudes. And of course they remain so unless later intellectual, emotional, or other forces modify them. Don't misunderstand. I am not saying these unidentified values are not good. They may be. I am saying that they have been accepted without critical examination, that they are used unconsciously as a basis for decision, and that this is not good.

I have paused long enough to remind you of these other evident foundations of attitude so as to help us focus more sharply upon the critical role in professional education and practice of value judgments intelligently arrived at. Let us now consider this role.

It is twofold. The first role I have already mentioned: such judgments determine in part—or can so determine—the professional man's attitudes and thus the ends toward which his activities are directed both in his professional practice and in his life as a citizen and as an individual. Let me illustrate. The practicing engineer, in making de-

cisions that confront him, must settle in his own mind, whether consciously or unconsciously, what relative weight he will assign to such values as personal advantage when this is placed alongside the values of ethical professional behavior; what relative weight he will assign to efficiency of labor-saving devices when this is placed alongside human and social welfare; to safety when this is placed alongside cost. And this engineer, as a citizen, must likewise determine—again whether intelligently or by "hunch"—what relative weights he will assign to the value of his own time and personal convenience, on the one hand, and to the value of his service, as an educated man, to his community and to his country, on the other.

He must likewise decide, as a citizen, as between the value of human freedom and the American way of life, with its attendant costs *to him* in money, time, and personal attention, and the values, as he may see them, of living under other forms of organized society. And as an individual, before he can live an intelligently directed and emotionally stabilized and satisfying life, he must adopt a set of moral and spiritual values as a basis of judging what is good and what is evil, and where his faith should lie; and a set of artistic and literary values for appraising and appreciating the great works in these realms. In other words, to achieve a well-ordered life that is rewarding in all of the activities of a professional man in his full stature, he must achieve a hierarchy of values, practically consistent, that will determine the ends toward which he will live and work: in short, a philosophy of life.

The second role of value judgments is related to the first: they constitute a logical basis for thinking. In the human and social realm such judgments are, *in this respect*, the counterpart of physical laws in the realm of science and engineering. They form the same kind of basis for constructive thinking—for analytical and creative ability. The primary difference is that physical laws are, of course, for all practical purposes, fixed, are not subject to opinion and choice; whereas value judgments are not fixed in the same sense, are subject to opinion and choice. Also, of course, one recognizes the intrinsic difference between a physical law and a value—that is, between a cause-and-effect relationship, on the one hand, and a chosen end on the other. But in both realms intelligent thinking, whether the purpose is to understand or to determine what to do in a practical situation, must proceed from a logical base.

For example, to determine how to go about a problem involving energy transfer, one of course falls back upon the Law of Conservation of Energy. Or, taking a case in the other realm, to decide what to do, as a citizen, about the problem of low-cost housing, one must look to his own values as the starting point in reaching his decision. Thus, there must be a foundation for intelligent thinking in either realm, and in the human and social realm where ends are so important, the values that are adopted by the individual form an essential part of that foundation.

If the point of view I have proposed regarding the essential role of values is accepted, we may now consider what this implies in professional education.

Three-Stage Picture

Let me again turn to a general concept as a setting in which we may explore this question. It is a concept which, for good or ill, I hold after struggling with the problem of education for over twenty-five years. My observations have indicated that in the achievement of intellectual competence and maturity there are three stages. I do not mean that every student who achieves such competence passes these stages in succession; I do mean that among graduates (and of course among students) one can recognize such different stages of attainment—perhaps in different degrees in the same individual. Thus, the concept represents merely a convenient scheme of classification and definition.

The first stage—if I may indulge in radio parlance—is what I would call "quiz-kid" learning. One learns facts—merely facts. Such learning can hardly be called encyclopedic, because in the encyclopedia the facts are at least ordered alphabetically! I refer to the welter of miscellaneous unrelated facts and information that today, I am afraid, characterizes too much of the learning in both secondary and higher education. It is the kind a student memorizes from lecture, class, or study, and passes back to the instructor in a quiz.

The second stage is the organization of knowledge. This is the selecting and pulling together of related facts and information. But it is not merely this; it involves also another selection. After selecting facts and information that are *related,* one must then select from these the items that are *significantly related;* that is, those groups of related items that can be fitted together into an organized whole. This twofold discrimination, together with the organizing process itself, is the way facts and information become useful knowledge.

One may picture this process. When such a new fact or idea is grasped by the student, he will, with the guidance of the instructor if he needs this, relate it to his existing knowledge by adding it, articulating it, to his growing tree of knowledge. If it is of fundamental significance, it may belong as part of the trunk, or even be a new root. One thinks of the roots as fundamental generalizations — for example, natural laws, economic generalizations, basic moral and political values. One thinks of the trunk as including corollaries and other derivatives of the basic generalizations, and also fundamental data that make these generalizations meaningful —for example, the space-time relationships that follow from Newton's Laws

(*Please turn Page*)

About the Author

Needing little introduction is Dr. Robert E. Doherty, for the past 11 years president of Carnegie Institute of Technology and formerly dean of the Yale University School of Engineering. A graduate of University of Illinois and Union College, he also holds degrees from Yale, Tufts, University of Pittsburgh and Waynesburg College. He began his professional career with General Electric Co., and has been president of the American Society for Engineering Education and of Engineers Council for Professional Development.

of Motion, the systems of units and the constants that go with them, the form of social organization that best fits the political values one has adopted and historical illustrations that support that form, and so on.

And one thinks of the branches and foliage as further extensions of specialized learning—for example, a formula for a specific case, or a new variation in electric motor design, or a new court interpretation of the Taft-Hartley Law, or a new illustration of human fortitude. Such a body of knowledge, so organized, represents a master *gestalt*—if I may borrow a word from psychology—in terms of which further learning becomes both intelligent and interesting. And the achievement of such a gestalt represents what I have called the second stage.

One of Aims

Something further may be said about this second stage. Certainly it constitutes one of the legitimate aims of higher education in any field. If limited within the definition I have suggested, its end result for the student is at least the ability intelligently to understand and to think *about* what he has learned, and perhaps a basis for inspiration and personal satisfaction. However, if education is limited to these terminal results, it cultivates merely what I would call a "scholarly front"—an ability to talk and write in an interesting and impressive way *about* what one knows. But there remains a great gap. One has not learned how to struggle with the situations of life; he can think and talk about them, but he cannot *do* anything about them; he has not cultivated an analytical and creative ability.

The achievement of this additional and higher ability represents the third stage of competence. It is the disciplined ability to analyze and the creative ability to devise means to an end.

Professional education may therefore be defined in terms of this "three-stage" concept. Its aim should be the achievement by the student of the second and third stages: which is to say the achievement of a foundation for his further learning and progress, so that after graduation he can continue to grow to his full stature as a professional man, citizen, and individual.

But our primary concern here is how to help the student achieve the second and third stages in connection with values. How can we help him learn to discriminate among values and to arrive at intelligent judgments? How can we best guide him to an effort to relate these value judgments to each other? How can we help him to learn how to use them as a basis for deciding what to do in practical situations?

Let me say at once that certainly I am in no position to give you the full answers to these questions. I do believe, however, that I am in position to define the general problem of the role of values in professional education, and I have done so. And I believe, too, that I can state a basis for the solution, and it is this I shall now try to do.

My own observation and experience have convinced me that the best way for a student to learn how to do something is to do it. This may require many attempts, if necessary under guidance, learning something further from each experience, until he can do it. Moreover, psychologists tell me that this makes sense. And this applies as much to the process of reaching intelligent decisions about values as it does to reaching intelligent decisions about anything else. If this view is accepted, then we at least know how to begin.

The first clear inference from this principle is negative. The student does not learn how to do such things merely by having someone tell him how or having someone do them for him. He must *do* them himself.

If we want him to learn how to discriminate among values and make intelligent judgments, we must give him the opportunity to face alternative values—confront him with what John Dewey calls a "forked-road situation." Thus confronted, how does the student make up his mind which way to go? Certainly not by being told which is the best way, for only he can decide which is *for him* the best way. Such a judgment is, or should be, a personal matter. Certainly not by having him choose merely on the basis of his family traditions and the provincial mores in which he was reared, nor on the basis of what he has read in the newspaper. If he is to decide intelligently, as we must insist that he do, then he must first learn how to do something else before trying to decide: he must learn how to select, organize, and use evidence.

Discipline of History

This is a discipline of history, and at least one way of helping him to learn it is, for example, to have him take a course in history that is *pointed to this end*—that is, one in which cases are carefully selected with respect to their usefulness in the student's effort to learn how to deal with evidence. Needless to say in passing, this is not the traditional undergraduate course in history. Thus can he learn to infer from the written record, generalizations about nontechnical matters, including values.

History is not, of course, the only source from which to appraise values; one may not even consider it to be the most important source. Other subjects of study and one's personal experience may be as important, or more so. Neither is it the only source for learning how to generalize from evidence, because there are other kinds of evidence. For instance, the engineering student learns to generalize—or should learn to—from dealing with quantitative data in the laboratory. But history's unique place in the problem we are considering stems from the fact that its primary discipline is the constructive use of evidence *from the written record*. And the student must learn such use before he is in position to make intelligent value judgments from evidence in such records.

Thus can he get a start at learning how to separate out relevant items of evidence, organize them into a meaningful relationship, and draw a generalization. And even while he is learning how to go about this process of creative analysis, the student will presumably deal with at least some cases that involve values; and later and broader study, if properly directed, will both sharpen his skill and bring him increasingly to the point of making value judgments that are intelligent, even if, at this stage, they are still tentative.

They must of course be tentative at first, because as time goes on the student may realize that a value he adopted earlier is in conflict with one he now sees reason to adopt. In that case, a new study and revision are necessary, since naturally the whole set of values he ultimately adopts must be practically consistent. By such a process the student can get a start in gradually approaching a hierarchy of values that are in a practical sense mutually consistent, and thus achieve in this realm of values what I have referred to as the second stage.

We now come to the question how to help the student learn to think constructively in terms of such values. This involves precisely the same educational

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Importance of Each Process In Patent Procedure Pictured

By JOHN F. CAVANAGH, P.E.
Providence, Rhode Island

A group of men happened to meet on the sidewalk outside a pawnshop and engaged in a friendly argument over the question as to who was the greatest inventor. As the pawnbroker rolled up the awning he said, "Gentlemen those was all great peoples, but the feller vot invented interest was no slouch."

Aside from whatever humor may be in that story, the pawnbroker was aware of the fact that the worth of an invention resides in its service value.

As for inventors, it is a fact that practically everybody has ingenuity and more or less originality. Every person, it seems, interested in any mechanical calling, hopes some day to hit upon a patentable item which will bring returns in the form of royalties or perhaps form the basis of a manufacturing venture.

Much of such effort fails through lack of understanding of the initial steps that should be taken. Again, ignorance of primary patent considerations causes many a failure. It is the purpose of this discussion to define the principles of developing that vague and chimerical thing called the idea and to point out some of the pitfalls which cause discouragement.

It is frequently asserted that opportunity for inventive thought is not nearly so great as it was say 50 or 75 years ago. This is tantamount to saying that all possible combinations of the sound elements which enter into melody have been made or that there is no longer chance for writing a new story, every plot having been exploited.

Opportunity Not Lessened

The opportunity for the practical exercise of original thought is as great as ever. In this connection it is interesting to note that every job in industry finds its roots in the application of such ingenuity. New England as a whole has made "Yankee ideas" a by-word, and it is of passing interest to note that my little state has contributed the greatest number of issued patents among the six. Whether it is the air or our exclusive clam chowder, Rhode Island seems to be conducive to the development of new ideas.

Before entering into a discussion of the technique involved in translating the idea into terms of production and sales considerations, let us endeavor to determine what is meant by the idea. How often have we heard such expressions as, "I gave him the idea." and "That fellow stole the idea"? And blazoned across the pages of our science magazines are the words, "Patent your ideas."

Article I of our Constitution gives the Congress authority to pass laws protecting authors and inventors but the word "idea" does not occur, and I have never heard of an idea being patented as such.

I have been approached, however, many times by sincere individuals who generously offered to give me one-half interest in what they called their idea if I would contribute such incidentials as experimentation, final design and the production of a perfected sample —all at my own expense, naturally.

So, well may we endeavor to evaluate this thing called "the idea" which, however, has no market value of its own, and which cannot be patented, yet is so frequently considered in terms usually applied to a valid issued patent. Wherein a device or technical improvement is so simple as to admit of description in few words, we can attach inventive thought to what is called the idea. To speak, however, of the idea as covering in a technical way an involved mechanism is simply absurd. The whole difficulty resides in the fact that the objective, put in words, is too often considered the invention.

We shall use the term "idea" as simply defining our objective and proceed to consider the technique involved in reaching that objective.

If our objective is a new or improved commodity, a novelty, or any item entering a competitive field, discussions with competent salesmen familiar with the field is of great value. Inasmuch as many persons are reluctant to discuss their improvement until a patent has been applied for or until enough work has been performed to identify the project with its originator, this valuable source of information is often by-passed and eventually the man who is endeavoring to develop his idea can say like a doctor, "The operation was successful but the patient died."

If, on the other hand, the contemplated development is to fill a well recognized need, sales opinion can await a demonstration of the new item. Assuming that a person has determined his objective and visualizes one or more original features in connection with it, his first step toward protecting his interests should be a sketch of the original features of his idea. Such sketches need not be mechanical drawings. Free hand sketches are entirely adequate so long as they depict the original features. The sketches should be signed, dated, and witnessed, preferably by a notary public.

Cites Examples

In this connection it is interesting to recall that DeForest established his patent rights to the radio tube by the evidence represented by a very crude freehand sketch, dated and witnessed. Such freehand sketches may be utilized by a patent attorney in making what is known to the profession as a novelty search. Such a search involves but a few dollars and will provide the inventor or designer with copies of patents closest to his new design. Unless a person is well posted with up-to-date information relating to improvements on his subject, a novelty search early in his development work is advisable, as repetitious and costly work may thereby be avoided.

Inasmuch as the government requires documentary evidence as opposed to verbal evidence should it become necessary to prove in court the date of conception, the practice of dating, witnessing and filing sketches of any kind which may involve dates of conception, is an excellent one for a person engaged in research.

I once heard of a travelling man who during his stay at a small hotel worked out in his mind an original electrical circuit. This happened in the middle of

the night. He arose to jot it down, but failed to find pencil, pen, or paper. He was determined to make a sketch rather than trust his powers of recollection the following morning, and finally in desperation, removed a bureau drawer and with burned matches drew out his circuit on the bottom of the upturned drawer. He retained it in his mind, however, and applied for a patent. Eventually the circuit became the subject of patent litigation.

In establishing his date of conception, he thought of his sketch on the bottom of the drawer. His lawyer subpoenaed the hotel clerk and required the latter to bring along the drawer and a photostat of the hotel register showing the date of registry of the inventor. This incident was an important factor in winning the case for the travelling man.

While the date of conception does not enter into normal procedure in procuring a patent, it becomes of paramount importance should interference develop. By interference is meant the conditions resulting from two or more patent applications with conflicting claims.

Inasmuch as patentable features of an invention usually become apparent during actual development, applying for the patent can await completion of development. In this connection, however, great care must be exercised to meet government requirements to the effect that the filing date of a patent must occur within one year after reduction to practice, that is completion of development.

The actual development of a new item whether it be a simple device or an involved mechanism is, of course, the measure of ability. The work may be greatly expedited by utilizing any available means to determine in advance the operation of untried elements, mechanical motions, and strength of parts. A competent man will not limit himself to the functions of the drawing board but will utilize improvised setups to expedite development or help him to visualize. As an eminent engineer put it after admonishing an engineering class to fortify themselves with basic knowledge, "Don't forget the value of a lump of clay, a bar of soap, or a block of wood."

Drafting's Role

Many people believe that expert draftsmanship is a prerequisite to the development of any new product, but this is not so. In most cases, however, a preliminary layout to scale will enable one to visualize the finished product.

Wherein a machine assembly involves such elements as cams, gears, levers, etc., in mathematical relationship the drawing is, of course, indispensable, but on the other hand, many small devices may be most expeditiously brought to the demonstrating stage by working directly in materials.

From an acquaintance with many engineers who have records of accomplishments in fields of research, it appears to be general practice to utilize either the drawing board or fabricating means as the immediate requirements may dictate.

Inasmuch as observation of the functioning of a device rather than examination of drawings provides the inspiration for improving it, it follows that one can usually give rein to creative thought most effectively while fabricating, assembling and operating rather than by confining his efforts to the drawing board.

That story of Edison's determining the volume of a bulb by filling it with water rather than trusting the calculations of a young mathematician is not without point.

Returning to patent considerations, familiarity with the technique involved in the preparation of a patent application is a must for the engineer in contact with developments subject to patent considerations. An engineer having this knowledge at his command can present welcome assistance to the patent attorney and frequently can avert future patent difficulties by recognizing danger points in the claims of issued patents pertaining to his particular development.

An instance from the record of such functioning on the part of an engineer will serve to illustrate the point. A certain electrical device contained within its symmetrical housing an angularly adjustable element and having an integral arm projecting through the housing for effecting the necessary adjustments. The new design provided an arm pivoted on the outside of the housing and projecting into the latter to engage the adjustable element. The engineer noted that practically every claim of the application, as prepared, contained the clause "an externally pivotted arm." He accordingly pointed out how the claims could be avoided simply by modifying the symmetrical housing to cover and encompass the adjusting arm. The claims, of course, were redrawn and the issued patent eventually became the basis of extensive production and hence very valuable, due in no small degree to the engineer's constructive criticism in preparation.

Attorney-Engineer Relations

The ideal relationship between patent attorney and engineer is that which permits the engineer to test the claims of an application by endeavoring to design around them. This kind of cooperation will insure the best possible protection in drawing the claims. It does not usurp the prerogatives of the patent attorney and is welcomed by the latter provided, of course, the engineer has a practical knowledge of patent claims.

In line with the trend of our times toward raising standards, the patent office now draws a fine distinction between invention and what it terms "mechanician skill" with the result that new mechanical and electrical elements which would become the subject of valid claims a few years ago are not now considered invention. These circumstances create opportunities for the engineer who interests himself in patent procedure whether the patent concerns his own work or that which he supervises.

Patent technique is a highly specialized branch of the legal profession, and it follows that the selection of a competent patent attorney is a matter of great importance. Established concerns have information at their disposal which precludes their becoming clients of inexperienced or incompetent attorneys but individuals not infrequently are impressed by the blatant advertising of some Washington patent concerns. These Washington patent firms referred to seem content with the most scanty claim values—just enough to permit issue. It is common practice for them to engage inexperienced persons, usually law students, to amend claims in response to patent office action and pay them so much per letter.

The preparation of a patent application on a simple device is not a difficult task for an educated, mechanically minded person. To carry through and secure the best possible patent protection, however, calls for attorney skill and experience, yet many, especially from outlying districts, send the results of long hours of experimentation and research to patent firms who are interested only in securing paper

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Houston Committee Session Brings Convention Action

By PAUL H. ROBBINS
Executive Director

Location of the 1949 annual meeting was the scene of a meeting of the Executive Committee of NSPE on June 12th and 13th. All members of the Committee with the exception of Vice Presidents Ryan and Emerson were present and enjoyed the hospitality of the engineers of Houston at several social events which interspersed the business sessions of the Executive Committee.

Principal reason for holding the meeting in Houston was to provide an opportunity for the Executive Committee to meet with the chairmen of the various local arrangements committees of the San Jacinto Chapter and the Texas Society of Professional Engineers who will be charged with the details of arranging the annual meeting in December. As anyone who has visited Texas knows, any meeting scheduled and under the supervision of Texans is a meeting that is long remembered by those in attendance.

Current planning for the meeting at the Rice Hotel in Houston, December 8th, 9th and 10th indicates that it will be no exception to the usual high standards for such Texas affairs.

During the course of the meeting, the Executive Committee had an opportunity to review many of the plans which are contemplated for the meeting this Winter. While the pattern will be somewhat similar to those in the past annual meetings, plans to secure nationally prominent speakers are progressing with considerable rapidity. Several outstanding social events are being planned to supplement the discussion of society and professional affairs which always attend the meetings of NSPE. Full details as they are finally developed will be carried in future issues of the American Engineer. However, the hope was expressed by all those in attendance that as many NSPE members as possible will start planning now to be in attendance at the annual meeting in Houston. It is firmly believed that all who attend not only will find the discussions of professional problems extremely worthwhile and indicative of professional progress, but will enjoy themselves at the various social events and through the friendships which will result from their attendance.

Some of the items discussed by the Executive Committee together with the actions taken are as follows:

The matter of student chapters of professional organizations was discussed at some length. The Executive Committee was informed of a recent invitation extended to a number of the major engineering societies of the country to participate in an inter-society discussion on this subject to be held in the near future. President Stanford indicated that he had appointed Past-President Alex Van Praag, Jr., to be the NSPE representative in these discussions. Purpose of the discussions is to

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In the Pictures

Camera highlights of the NSPE Executive Committee meeting at Houston, Tex., show 1. a candid shot of the cocktail party given by the Houston Engineers Club for visiting NSPE and Texas Society officials; 2. Conferring on plans for the December annual meeting are (front) Oscar Koch, president of the Texas Society, and Alan G. Stanford, NSPE president, and (back row) Noah E. Hull, president of the host San Jacinto Chapter; Mason G. Lockwood, Houston, 1st vice-president of TSPE; and Executive Director Paul H. Robbins; 3. General view of the San Jacinto Chapter banquet given for NSPE and TSPE officials; 4. This group of dignitaries includes (front row) Vice-President John D. Coleman, President Stanford, Vice-President S. L. Stolte, Treasurer Russell B. Allen; and (back row) Howard Tellepsen, treasurer of general arrangements committee for the NSPE-TSPE joint convention; Brandt Rawson, president of the Houston Engineers Club; President Koch; Hull; and Harold J. McKenzie, immediate past president of the Houston Engineers Club; and 4. This threesome includes Kenneth Franzheim, president of Houston Chapter of AIA; Dr. E. E. Rosaire, a TSPE director from Dallas and Houston; and Dean F. Saurenman, Houston Engineers Council.

determine ways and means of coordinating student activities of the various societies participating. The Executive Committee noted the action of the Board of Directors taken at Baltimore concerning the promotion of professional concepts and consciousness among students and the further stipulation that the procedures for implementing such activity should be left to the state society. The Executive Committee felt that this statement of policy should be the guiding principle for the student activities of NSPE.

All state societies have been asked to send to the Washington office a summary of such activities as they may have engaged in in promoting professional concepts among student engineers. It is felt that this will be helpful both to the Board of Directors in further consideration of this matter and to Past-President Van Praag in his discussions with the other societies. The Committee on Education has been asked to summarize these activities and present a report to the Board.

Chapter Handbook

The Chapter Activities Committee, it was reported, has been actively at work in the preparation of the chapter handbook. The handbook is to be prepared in loose leaf form and the society is now negotiating to secure binders suitably inscribed so that the contents of the handbook can be retained for the permanent reference of chapter officers. It is expected that the handbook will be available for distribution sometime in the Fall and current expectations are to be able to present to each chapter a copy of the handbook for the president and another for the chapter secretary.

The handbook will contain brief historical information concerning the formation of the National Society which it is hoped will be supplemented by similar information concerning the state society. Material on the philosophy of organization and the effectiveness of the integrated levels at the chapter, state and National organization; the duties of chapter officers; examples of worthwhile and interesting programs; various functions the chapter can perform; information for the chapter secretary on the details of chapter administration; a thumbnail outline of parliamentary procedure for chapter business sessions; copies of publications available through the society and other pertinent information will also be included.

The Executive Director reported on recent information forwarded to the Washington Office concerning the American Society of Safety Engineers and inter-society cooperation with them. It is found that the American Society of Safety Engineers is endeavoring to establish stand-

(*Continued on Page* 12)

Denver Meet Program Timetable Announced

Timetable of events for the Fall meeting of the NSPE Board of Directors, slated for Denver, Colo., August 11, 12, and 13, has been announced by the Colorado Society. Scene will be the Cosmopolitan Hotel.

Kickoff of the three-day meeting will be the regular pre-board meeting of the Executive Committee. The entire day of August 11 has been set aside for the committee's deliberations, with an informal luncheon and dinner breaking the work pattern.

Registration will begin at 8 a.m. August 12 for incoming Board members, with the Board of Directors beginning its deliberations at 9:30 a.m. The noon luncheon will hear Denver's Mayor Newton. That event will be held at the Officers Club. The three hours between 2 and 5 p.m. will be devoted to the continuance of the Board sessions, again at the Cosmopolitan.

The evening banquet, at 7:30, is expected to draw upwards of 200 persons to hear Clarence J. Daly, president of Capitol Life Insurance Company.

Bright and early Saturday, the Board will resume its deliberations, then will take an hour out for luncheon and be back on the job for the final afternoon session. A complete program of events for wives who will accompany board members has been planned, with both shopping trips and sightseeing on the agenda.

That many wives will accompany their husbands to the meeting is almost certain. Denver, known as the mile-high city, is the farthest west a meeting of NSPE has ever been held, and is noted for its scenic wonders. Those from the East Coast who fly to the meeting can take advantage of special family half-fare rates offered by the principal airline serving Denver from both coasts—United Air Lines. Since NSPE pays the expenses of one director from each state to the meetings, directors bringing their wives will have to pay only half the normal fare for her transportation.

Air service is excellent—twelve westbound flights landing at Denver and a like number of eastbound flights using the large, new Stapleton Field. Where possible, United Air Lines has promised to schedule flights of those coming from the east so that directors may meet at Chicago and make the Chicago-Omaha-Denver leg of the flight together.

Tourist attractions at Denver include the vistas in the great Rocky Mountain area, Buffalo Bill's grave atop Mt. Lookout; Rocky Mountain National Park, and Pike's Peak and the Garden of the Gods at nearby Colorado Springs.

(Courtesy United Air Lines)

Aerial View of Denver

Accent on Activity

By A. C. NEFF
Chairman, Ethical Practices Committee

As members of a profession we are men of principles—not only in our daily personal lives, but in our professional associations and activities. We call them ethics. What those principles or ethics should be and how we as a National Society should implement and encourage them is the function of the Ethical Practices Committee.

Some of the problems presented to the committee and the appropriate solutions are not always easy nor can we find dogmatic answers to many of the considerations the committee has faced in the past months. But the committee has considered and is still considering many important problems and has presented recommendations resulting in the establishment of policy and the implementation thereof. This report is intended to acquaint you with the activities of the committee. Needless to say, your comments and suggestions on the points discussed will be most welcome and most helpful in our deliberations.

One of the first and perhaps the most important action taken by NSPE in the field of ethics concerned the rules by which we should live professionally. Academic discussions are appropriate and valuable but somewhere there must be a written set of "rules" we can look to as a general guide in solving the "do's" and "dont's" of ethical behavior. Unfortunately, the history of the engineering profession in this field had been similar to its history in other fields—many engineering organizations, both national and state, had their own codes of ethics. The intent and general character of all of them was substantially the same but there was no uniformity we could look to as a profession.

Consequently, instead of writing another "code" NSPE studied the various possibilities and as a consequence determined that the Canons of Ethics of the Engineers' Council for Professional Development best expressed the principles desired. Our Board of Directors was one of the first national engineering societies to approve the ECPD Canons of Ethics. Also, most of our state societies have approved the same Canons of Ethics and the rest are in the process of doing so. The ECPD Canons have now been adopted by many national and state engineering organizations and we can confidently expect that its approval will be profession-wide in the near future. We can be proud of our early recognition of these Canons. Every NSPE member should have a copy and more importantly, he should read them and put them into practice.

For some time the profession has struggled with the problem of competitive bids for professional engineering services. Over a considerable period of time the committee studied this problem and found, as to be expected, that it was not all "black or white." But weighing the various factors, one against the other, the committee could come to no conclusion consistent with professional standards except that professionalism and commercial bidding are not consistent. Hence, the committee presented a report on the subject to our Board of Directors and made what was considered to be an appropriate statement of policy.

Urges Support

The Board of Directors has concurred in the committee's findings and has approved the statement of policy. Every member should have this in his files for reference, particularly when competitive bidding situations come to his attention, in order that he may refute the practice in accordance with the NSPE position. Briefly, NSPE recommends that those requiring engineering services should secure the names of qualified practitioners, discuss the proposed work with several engineers and even explore their background, experience, and qualifications, compare the proposed charges for the professional services with the suggested minimum fee schedules prepared by the engineering society in the locality, and after these preliminary considerations negotiate with an individual engineer or engineering firm for the work. The committee believes that this procedure will protect the professional interests of engineers and will assure to the other party competent engineers who can be safely entrusted with the job.

A vexing problem brought to the attention of the committee concerned the offering of free engineering services in connection with the sale of a product. A study of this problem indicates that there is no "snapshot" answer. It is a question of interpretation and good practice consistent with industrial conditions.

While there would be no question but that we should ethically oppose the offering of free engineering service to stimulate sales of industrial products, we likewise recognize that in many cases it is necessary that engineering services be associated with a highly complicated product both to protect the producer's interest in seeing that the product is installed and operated successfully and in giving to the purchaser the necessary technical assistance in order that the product does the job for which he intends to use it. In the latter case it is truly not "free" engineering service but is actually an engineering service performed as a necessary part of the agreement and for which the purchaser pays as part of the overall price. The committee is giving continuing consideration to this problem and with additional experience and cases at hand a national policy may be presented.

Space remains for only brief mention of some other items with which the committee is concerned, but they are indicative of the type of problem for which we are earnestly seeking solutions. A subcommittee has been considering the possibility of incorporating a uniform definition of the word "engineer" in the standard dictionaries and encyclopedias. The committee helped initiate and is cooperating on a compendium

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Federal Labor Official Warns Of Engineer Over Supply

Sharp warning that competition for jobs is getting tougher for new college graduates has come from Ewan Clague, commissioner of labor statistics of the U. S. Department of Labor.

"Immediate employment prospects for this year's more than 300,000 graduates are likely to be somewhat less favorable in many fields than in any year since the war began," Clague warned. "In the long run, however, the employment outlook in professional and executive occupations may be better than during the next few years."

Among the fields in which Clague predicted an oversupply of new graduates in the next few years are engineering, law, accounting, business administration, personnel work and journalism. Pharmacy may be added to this list by next year.

"More graduates will be coming out of American colleges and universities this year than ever before in history, and industry is hiring fewer workers than in recent years," the federal official declared. "The number of 1949 graduates is expected to exceed last year's total of 319,000, which in turn was nearly 50% greater than the prewar high in 1940. Even more graduates are expected in 1950.

"This year's college graduate will be confronted with an economic situation which differs considerably from that of the past few years. While there is much evidence that the general economic situation remains strong, the rate of hiring has slackened appreciably over the past year, and the economy as a whole has not been absorbing the normal increase in labor force. While the current unemployment level is still low when compared to the record size of the civilian labor force, it does mean job difficulties for new workers as well as for handicapped people, older workers and others who are less readily hired."

Clague suggested that this year's graduates and those still attending colleges might adjust to the situation in several ways. Some may find that their best course is to aim at a job in a field related to their training, he said. Many engineering graduates, for example, will find that their training helps them to obtain administrative or technical sales jobs. Others will want to continue in school for postgraduate work in the same or related fields in order to improve their chances for employment.

"In the long run," he concluded, "the outlook for professional and administrative occupations may be somewhat better after the next few years when the peak in college graduations has passed. Employment in the professions has grown rapidly from 3 1/3 million in 1940 to over 4 million in 1949. It may well increase to 5 million by 1960. Employment in administrative and executive occupations has likewise shown an upward trend. However, if college enrollments increase in line with past trends, competition for professional and executive jobs will continue to be keen unless students broaden their vocational horizons and seek employment in a wider range of occupations."

Neff

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of engineering registration laws which will be published shortly.

A survey of relations between the architectural and engineering professions in the several states was made and the results indicate that relations are generally good but that there is much that can be done on both sides to improve cooperation and mutual beneficial action. This is a continuing activity which should go on indefinitely. Standard titles for engineering positions have been suggested to the committee and this may be another desirable field requiring an extensive study and a long-range program to have industry, government, and the profession accept the findings.

The above brief discussion is aimed at advising you of things the committee has done, is doing, and subjects requiring further activity and consideration. The many administrative jobs, such as checking questionable advertisements in our magazine, and other routine assignments are not discussed. In all of this work the aim of the committee is to contribute toward the common goal of self-improvement and assistance in our all-important ethical practices.

Friendly State Society Key to Enforcement--Waid

"A friendly state professional engineering society and registration board, acting together, can do much to protect the pocketbook and welfare of the engineer as well as to safeguard the life, health and property of the public."

That's the advice given members of the 48 state engineering registration boards by Robert N. Waid, member-secretary of the Ohio board, in the June issue of the *Registration Bulletin*, official publication of the National Council of State Boards of Engineering Examiners. Waid makes a strong case for a very closely knit relationship between the NSPE member state societies and the registration boards.

He cites the provision in the Ohio registration law that all funds the board collects shall remain in a professional engineers' fund as one evidence of the value of such a relationship, declaring that provision would have been impossible of attainment without the "full and continuous cooperation and assistance of the Ohio Society of Professional Engineers." He urges that members of the registration boards participate actively in affairs of the member state societies (four members of the Ohio board are past presidents of OSPE), by pointing out that the state society can reciprocate by "sponsoring enforcement of the registration act, by representing the profession in legislative matters and by joining with the board in presenting a united front in connection with projects and enterprises of interest to the professional engineer."

Engineers Prove Top Administrators on Job

Sweden apparently is finding that college-trained engineers are top-flight business administrators.

Prof. Robert Kristensson, exchange professor at New York University from the Royal Institute of Technology in Stockholm, reports that the percentage of such engineers in management jobs has more than doubled in the past two decades. At the present time, the percentage of engineers in top management posts is about 50 per cent in the Scandinavian nation.

Such employment has meant that more education in industrial economics must be given technical students during their college careers.

Splitting the Atom--
Profession Now Split 90 Ways Divided Again

Just when everyone thought the engineering profession had been divided and subdivided organizationally to the nth degree, a new method has been found of splitting the particles a step further—by sex.

That news is contained in a publicity release announcing holding of the first conference of women engineering students at Drexel Institute of Technology, and formation of the first Society of Women Engineers. More than 70 women engineering students representing 19 colleges in the industrial East were in attendance at the meeting, and it is planned to expand the organization until it becomes nationwide.

Prior to founding of the SWE, there had been no overall organization to unify the efforts of the few individual women's engineering groups that did exist. Three types of membership are envisioned—full membership for all women working toward an engineering degree, associate memberships for women studying in related fields and graduate memberships for alumni.

That the SWE intends to pursue its course with vigor is shown by keynote addresses of members of the distaff side who appeared before sessions of the organizational meeting.

Dorothy R. Young, dean of women at Drexel, declared in an address emphasizing human engineering that "women need to realize the possibilities and experience the satisfaction that comes from cooperative actions. Furthermore, women need to realize that it is also necessary to work cooperatively with men in larger fields, planning together to abolish those inconsistencies that mar our democratic society."

In speaking before a dinner in her honor, Dr. Lillian M. Gilbreth, noted woman engineer, stressed the need for scientific training with the disciplines of engineering.

"We are a comparatively new group, we women engineers, and have a definite responsibilty to see that there is for business or any employer no disappointments because of us—we are willing and eager to pay that price," Dr. Gilbreth said. "If we don't do that, we will close the opportunities for the women who come after us. Engineering, so far exclusively a man's profession, has been opened to us generously by the men.

"I can't tell you what the future for us will mean, but it is encouraging that increasingly there have been more opportunities and that the willingness to help runs everywhere. We have much to give, girls, be generous!"

Named as officers were Phyllis Evans, president, Drexel; Margaret Bliss, vice-president, Tufts; Joyce Killian, treasurer, Alfred; Edna C. Van Note, recording secretary, Virginia Polytechnic Institute; and Consuella Stokes, corresponding secretary, City College of New York.

Nominating Committee Meets

Job of selecting nominees for top NSPE offices in the administrative year beginning July 1, 1950, already has been launched by the Nominating Committee. This picture was taken in June when the committee, which is scheduled to report its recommended candidates in the November American Engineer, held its first meeting. Clockwise around the table in Washington headquarters offices are L. N. White, National Director from Arkansas Society; James Logan, immediate past-president of the New Jersey Society; Chairman William A. Oliver, National Director of the Illinois Society; Don Beach, immediate past-president of the Georgia Society; and Clarence N. Wiley, past-president of the Connecticut Society.

Stanford Asks Members To Return Survey Forms

A plea that all NSPE members fill out completely and return a special four-page questionnaire being distributed for the National Military Establishment has come from Alan G. Stanford, president.

The information gathered will give the government a who's who in engineering research, development and other scientific operations to be catalogued as a valuable tool for solving a variety of technical personnel problems. The questionnaire has been readied for distribution to 100,000 engineers holding the grade of member or higher in 18 national engineering societies. Office of Naval Research of the National Military Establishment will classify the information obtained. Names, addresses, ages and details of professional and scientific qualifications of key engineers in all branches of American engineering will be made available for ready reference if recipients will return their blanks.

According to Stanford, use of the source file of key engineering personnel will, it is hoped, diminish disturbances of the national economy, organization of industry and the personal welfare of engineers, and at the same time provide a means by which national resources of technical personnel can be ascertained. It is also expected to highlight weak spots that should be strengthened by education and training.

The information collecting project is the result of a conference held in Washington last Fall attended by Paul H. Robbins, NSPE executive director, and leaders of other engineering groups at which was outlined the need for obtaining a roster of 25,000 key engineers who could be called in on a full or part-time basis to work on the broad scientific programs of the National Military Establishment.

Stanford Addresses Meeting

NSPE President Alan G. Stanford addresses a meeting of the San Jacinto Chapter during the Executive Committee meeting in Houston.

ASCE Section Studies Relations with NSPE

In ASCE circles, the Tennessee Valley Section is considered as one of the more progressive affiliated units. Which gives added emphasis to reported events which occurred at the recent Spring meeting of the section.

In part, the *Tennessee Valley Engineer,* the section's publication, reports of that meeting:

"ASCE Director Edmund Friedman (a Miamian who is active in affairs of the Florida Society of Professional Engineers—Ed.) counseled the members to keep an open mind with regard to NSPE. He cited the parallel case of the American Medical Association, which includes all kinds of doctors who in addition belong to numerous organizations of specialists in the various fields of medicine. NSPE conceivably could function for engineers as the AMA does for doctors. Fundamentally, our societies such as ASCE, ASME, AIEE, are mostly technical in nature and are not set up for the economic welfare of the members.

"Dean N. W. Dougherty, former ASCE director, concurred with Mr. Friedman. He thinks that there is a place for NSPE. He referred to the various attempts of engineers to combine under one federated organization such as the former Engineering Council and now EJC. These organizations are federations and have inherently the weakness that they may fall if one strong member withdraws. There are 140,000 registered engineers in the U.S., and if NSPE could get 100,000 of these, the Society would be a powerful influence. Dean Dougherty sees no necessity for conflict but believes that ASCE and NSPE can and should work together."

Just what impressions the two men made on the thinking of those in attendance is shown by the summary given by Ernest M. Titus, president of the section.

"No definite conclusions were reached as to the relationship between NSPE and ASCE. Most of the discussion indicated that those present were of the opinion that there was a need for the two organizations and that there was no need of conflict between programs."

Robbins

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ards for membership in the society along professional engineering lines. Several of our states have discussed the desirability of registration for safety engineers and it is believed that there is a field for cooperative effort in the matter of registration of safety engineers.

The Executive Director reported that the society had invested its reserve fund in Treasury bonds.

The automobile emblem authorized to be placed in production at the Baltimore Board Meeting was reported to be expected to be available to the membership shortly after July 1st. Correspondence and information received from several state societies indicated the desirability of removing the words, "National Society" from the emblem and leaving only "Professional Engineer." The Executive Committee approved this change and referred to the Ethical Practices Committee the matter of preparing a list of recommended uses for which the revised emblem may be used.

The Salary and Fee Committee reported that they are progressing satisfactorily in the initial studies upon which further development of this important phase of professional information may be developed. All of our member state societies, a number of non-affiliated state societies, and many national engineering organizations have been asked to cooperate with the committee by supplying such studies of salaries or recommended schedules of fees and salaries as they have authorized from time to time. The President and Executive Director will meet with Ole Singstad, chairman of this committee, in the near future to discuss further studies to be developed by the committee.

The very complete report of Lawrence E. Peterson on his representation of the National Society of Professional Engineers at the First International Congress of Civil Engineers held in Mexico City was available to the Executive Committee. As reported in a previous issue of the American Engineer, Peterson reported extensively on his visit to Mexico City and was chosen by the delegates from the United States to be their spokesman in presenting the gratitude of those in attendance to the Mexican government.

The program for the forthcoming Board meeting in Denver was reviewed briefly with the exact agenda to be determined by the Executive Committee at its meeting prior to the meeting in Denver.

Around The Nation With Our Members

Engineer Called Key To City Money Troubles

Almost every problem now facing cities and other governmental agencies has been brought about by the failure to get or to accept sound engineering advice available in the past. In many cases, things were allowed to drift; in other cases where such sound advice was available, it was turned down for political expediency.

So spoke Paul H. Holland, director of public works at Baltimore, Md., in an address to a joint session of the Parkersburg (W. Va.) Chapter and the West Virginia Section of the American Society of Civil Engnieers at Parkersburg.

"Throughout the country," he declared, "cities are finding themselves more and more in need of money to do the things which are both necessary and desirable. In many cases, the funds simply cannot be provided by taxation methods in current use. Many of our cities are faced with several choices—any one being bad—sometimes from a political standpoint, impossible.

"In my opinion, there is just one 'out'—and that can be devised only by engineers. Our governmental units, from the smallest towns to the federal government, are disgracefully inefficient, with concurrent waste of billions of tax dollars. I can't see how we can continue this waste much longer without serious interference with our manner of living and our form of government. Clear thinking engineers are better qualified to lead the way in more efficient operation, less wasteful methods, in curtailing nonessentials, in order that we may stretch our available dollars to cover necessary functions and facilities.

"But are we as a profession doing that? We are not. How many of us really believe in economy in government? Community pride demands that we grab federal aid, for example, for new post offices, new highways, freeways, river and harbor improvements and what not. Some of these are sound, but others are of a doubtful economic value. Each city must, however, keep up with 'Jonesville,' and engineers readily prepare plans and help fill out requests for federal aid. Conscience doesn't seem to bother them at all.

"We must examine every budget, even every individual project, to determine—first, is the project essential, in principle; second, what alternate, at less cost, is available; third, how can cost and later operating expense be reduced to an absolute minimum. Engineers are responsible for all the material things we so thoroughly enjoy in conquering time and space in comfort. Now these same engineers must devise a plan under which people can live with these things; we certainly do not want to live without them."

Augusta Hears Details Of Air Engineer Center

Details of the organization, functions and operation of the engineers aviation unit training center at Camp Gordon was outlined to members of the Augusta (Ga.) Chapter by Col. Charles H. McNutt, commanding officer.

Prime purpose of the center, McNutt said, is to assemble and train aviation engineers for ultimate use by the Air Force. Primary work will be in building of airports, bomb disposal areas, supply depots and hospitals.

Pittsburgh-Midwestern Members Join in Outing

Members of Midwestern and Pittsburgh Chapters of the Pennsylvania Society joined forces in June for a special outing which offered fishing, golf, boating, bathing, dancing, a dinner and a business meeting.

The affair was held at Oakland Beach Hotel on Conneault Lake, and was planned so that the Saturday lull would give those attending a full-day in which to enjoy themselves. Wives and friends of members of the two chapters also were invited guests.

ISPE Okays Proposal For Own Offices

Plans for establishing headquarters in its own building now have passed the talking stage for the Illinois Society.

ISPE has taken an option on a building at Champaign, and it is expected that the structure will be ready for occupancy by December 1, 1949. The structure optioned was damaged by fire recently, with about one-third of the two floors and roof destroyed. The walls are, however, intact. Purchase price of the building in its present condition is $10,000, and with an estimated $30,000 to $40,000 spent for repairs, a property that it is anticipated would cost $60,000 to $70,000 to replace. Rental of other portions of the building, it is anticipated, will provide the ISPE with a state headquarters office rent free.

Issuance of $50,000 in 20-year bonds, which will draw interest at 4½%, is planned by ISPE to finance the repairs. The board of directors has authorized the executive committee to complete details of the purchase of the property, prepare plans and enter into contracts for rebuilding. ISPE thus will become the first NSPE affiliate to own its own headquarters office.

Seattle Hits Solution For Phone List Problem

Public relations committee of the Seattle (Wash.) Chapter thinks it has worked out an acceptable compromise to the rugged problem of telephone company directory listings.

As has been the case with many of the Bell System's branches, the chapter ran headlong into a brick wall in attempting to get the company there to establish a "professional engineers" section in the classified directory (even in the face of samples of directories from such states as Minnesota which has such a section as the result of joint cooperation between the Minnesota As-

sociation of Professional Engineers and Northwestern Bell Telephone Co.).

So the committee has evolved the idea of adding one line — "Member, National Society of Professional Engineers"—to the classified listing of each member listed in the classified section. John O. Johnson, chairman of the committee, says the phone company has approved the additional information, which will "add considerable prestige and distinction to such listings by informing the public that such engineer is of distinguished standing."

Well in advance of the publication of the next telephone directory, Johnson's committee will contact every member concerned to secure his written authorization for the additional listing.

Flood Control Plea Voiced by Wheeling

A resolution urging appropriation of $125,000 in federal funds to prepare plans and specifications for flood control and protection measures for the cities of Wheeling and Benwood has been approved by the Northern Panhandle (W. Va.) Chapter.

The action came following a chapter meeting which was devoted to presentation of a comprehensive picture of the Wheeling-Benwood floodwall, funds for which have been threatened by Congressional action. The meeting brought out the project now is up to the residents of Wheeling, and that its abandonment or delay will rest upon the effort with which they push their support of the project.

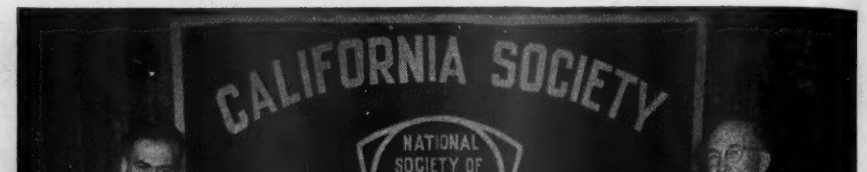
The chapter's resolution cites "detrimental effects of the periodic floods of the Ohio River on property," declares that the "undesirable condition" can be eliminated by installation of flood protection facilities at "fully justifiable expenditures of public funds" and urges every citizen to "impress upon our members of the Congress the necessity of securing prompt approval of the required appropriation."

New York Aims Sights On Ohio's Member Figure

A full dress battle is in prospect between two of NSPE's member state societies.

New York State Society and the Ohio Society are to be the participants. That fact became evident following a meeting of the NYSSPE board of directors at Binghamton Country Club. From that meeting came a battle cry "push New York state's membership ahead of Ohio's, where it belongs as the Empire State."

Bay Area Hospitality Booth



Hospitality booth of the Bay Area (Calif.) Society at the 1949 Industrial Exposition in Oakland was being manned by John L. Trebilcock, secretary of the California Society, and I. H. McCarthy when this picture was taken. The eight-day exposition, organized under the direction of Roger D. McCoy, president of the chapter, featured equipment and machinery engineered and manufactured in the nine counties comprising the San Francisco Bay Area. A special "engineer's day" was a feature of the exposition, open to the public from 3 to 11 p.m. daily and to engineers, purchasing agents, etc. only from 11 a.m. to 3 p.m.

Coca Cola Executive Shows Engineers Faults

"Never on God's green earth can an engineer win the love of a woman with a transit."

"The only time an engineer shows any ability as a salesman is when he is trying to sell himself and his services in return for a charming and winsome wife."

With such statements, Harrison Jones, chairman of the board of directors of the Coca Cola Company, drove home to members of the Atlanta (Ga.) Chapter the need for engineers developing their stature through application of humaneness in their relations with clients, associates and others in their business activities. He put the engineering profession to shame for being such laggards in selling its members badly needed services and latent talents to the public. And he reminded chapter members that most technical men have non-technical bosses who have a much better ability for selling their own services and also those of their subordinates than do the technical men themselves.

More than 200 engineers atttended the chapter meeting, at which Cherry L. Emerson, NSPE vice-president and vice-president of Georgia Institute of Technology, and Chapter President Vincent Waters presided.

All those members attending received engraved membership certificates in NSPE as part of the meeting. All members of the Georgia Society are slated to receive the 10" x 13" certificates at chapter meetings. Georgia Society is paying the cost.

Soap Opera Demonstration Shows Little Woman's Ills

Members of Madison County (Ill.) Chapter discovered at a recent meeting why their women folk are so down in the dumps when the husbands come home in the evening.

It's the soap operas the gals listen to all day long. And if husbands have any hopes that television will improve things, they are in for a disappointment.

The information was given members at a special guest night program by the Alton Little Theater group. The group put on, for the amusement of the men, a series of takeoffs — complete with commercials—on the soap operas. And about the time the engineers present were praising the advent of television, the group's actors launched into a demonstration that that media of communication was only going to complicate things rather than improve them.

Attorney General Gives Broad Act Ruling

Ohio's Attorney General Herbert S. Duffy has given that state's NSPE affiliate some ammunition in its drive to curb violations of the registration law.

The ammunition is contained in a ruling by Duffy that clearly outlines several important points on provisions of the law. He ruled, first, that an individual not registered as a professional engineer cannot advertise himself as an engineer or use the words "engineer" or "engineering" in connection with his name or business. Secondly, he held that a non-registrant who is not engaged in engineering practice but engaged in work as a tax consultant, as a business management expert, an accountant and the like cannot use either of the words in connection with his name or business on letterheads, calling cards, directory listings or in any other form, thus leading the public mistakenly to believe that he is a professional engineer. And third, he ruled that the same provisions apply also to firms, partnerships and associations, the members of which are not registered engineers.

"It is clear that the meaning and intendment of the act is to prohibit any person from engaging in engineering activities of every kind, unless such person has duly qualified with your board under the provisions of the act by submitting his qualifications for registration," Duffy's opinion said.

"Some individuals although not registered with the board as professional engineers, insert advertisements by omitting the word 'professional' but do describe themselves as engineers of a certain type. I construe such practice by these individuals as being an offer to the public to render engineering service. The representation by verbal claim, sign or advertisement that the individual practices any branch of the profession of engineering is an outright assertion that such individuals hold themselves out to the public as professional engineers.

"Specifically included in the registration act in clear and concise language is a distinct prohibition directed against individuals holding themselves out to the public as professional engineers, unless such individuals have fulfilled requirements for registration as professional engineers in conformance with provisions of the act. The application of the law and its stated prohibitions would apply equally to firms, partnerships and associations, as well as individuals."

EJC Professional Unity Discussions Aid Asked

Representatives of some 15 of the major engineering organizations of the United States—including NSPE—are to sit down soon to launch a general discussion of the problem of unity in the engineering profession.

NSPE was invited to participate in the discussion by R. E. Dougherty, president of the Engineers Joint Council, and the invitation was accepted by Paul H. Robbins, executive director.

"Discussions of this kind, it is the feeling of NSPE, can do much to bring about an understanding between the various societies in the engineering profession and closer unity in our approaches to our common problems," Robbins wrote Dougherty. "I am sure that NSPE's policy of cooperation with other engineering organizations on matters of mutual interest will lead to a decision of full participation."

D.C. Annual Meet Hears Carmody, Elects Heads

Tabulation of ballots for election of new officers and an inspiring address by an engineer who retired from government service after holding a number of top posts were main features of the annual meeting of the District of Columbia Society.

The speaker, John M. Carmody—former editor of *Coal Age*, one-time chief engineer of the Civil Works Administration, commissioner of the railroad retirement board, administrator of the Rural Electrification Administration, administrator of the Federal Works Administration and finally a commissioner for the Maritime Commission—gave his ideas of the function of the engineering profession.

Engineers should, he asserted, make the world livable in its physical aspects. As professional men they ought to be responsible to ideals developed over a long period of time. They need a keener understanding of human relations. As a learned profession, engineering must concern itself more with the struggles of humanity.

Because engineers are to the largest extent employees, they have lost the prestige accorded other professions which directly serve the public. This lost prestige must be retrieved and the only way to do it is through professional organization of ideals and standards. Then, and only then, Carmody said, will administrators in government and business seek out the advice of professional engineers on other than technical matters. And there is no other way to retrieve the lost prestige.

Named as officers for 1949-1950 were Melville L. Brown, president; Ralph A. Dane, 1st vice-president; Henry W. Clarke, 2nd vice-president; Paul S. Dell'Aria, secretary-treasurer; and directors, Arthur D. Brown, Hermann Mezger, Alvin R. Olson, Col. Walter L. Simpson.

Canton Finds Certificate Meets Produce Members

Do certificate presentation meetings —at which new registrants receive their P.E. licenses or permits—pay off in new membership?

Emphatically yes, reports the Canton (Ohio) Chapter. It sponsored one of the presentation meetings, at which local members of the OSPE gathered to pay tribute to the new professional engineers. All the new registrants in the area the chapter serves—11—turned out to receive their certificates from a member of the Ohio registration board.

And all 11 signed membership cards on the dotted line.

Aviation, NSPE Hold Stage at Chapter Meet

Two men who came to report growth and development in entirely different fields held the center of attention at a recent meeting of Central Georgia Chapter at Griffin.

On hand were NSPE President Alan G. Stanford, Atlanta, who was reporting on the rapid growth of NSPE and the evidences he has found in visits to a number of member state societies that it is flourishing; and Prof. Alan Pope, of the Daniel Guggenheim school of aeronautics at Georgia Institute of Technology, who came to report on recent developments in aviation throughout the world.

Refresher Course Enrollment Encouraging

Members of the Chicago (Ill.) Chapter are jubilant over response to first offering of a refresher course for those planning to take the forthcoming Illinois registration exams.

Leo A. DesAutels, chairman of the chapter membership committee, reports that 42 persons enrolled in the 20-hour (two hours per week) refresher course held at Navy Pier under joint sponsorship of the Illinois Society and the University of Illinois.

NSPE Committee Chairman at Mexico City Meet

NSPE's International Affairs Committee chairman, Lawrence E. Peterson of Milwaukee, was much in evidence at the first International Congress of Civil Engineering in Mexico City, as this picture proves. In addition to giving one of the convention papers, in which he discussed NSPE's approach to professional problems in the United States, Peterson was host at a formal party for leaders of the Congress. In this photo of the party group are (front row) Senora Gomez Perez; her husband, Senor Francisco Gomez Perez, secretary of exterior relations of the congress; Senora Rivero del Val; Senor Luis Rivero del Val, president of the Congress; Mrs. Lawrence E. Peterson and Peterson; and (back row) includes Mr. Kohler, American Embassy, Mexico City; Edward H. Anson, vice-president of Gibbs and Hill, Inc., New York City, representing the American Institute of Consulting Engineers; Senor Pardo; Senor J. Antonio Pardo Bolland, a civil engineer whose father was ambassador from Mexico to France and whose brother currently is ambassador to Sweden; and Howard F. Peckworth, managing director of American Concrete Pipe Association.

Champaign County Names Officers, Committee Heads

Election of new officers and appointment of committee chairmen to serve in 1949-1950 has been announced by the Champaign County (Ill.) Chapter.

H. E. Hudson, Jr., heads up the chapter as president; J. T. Kearns is vice-president; and J. C. Dietz is secretary-treasurer. Committee chairmen named by Hudson include W. D. Mitchell, fees and salaries; J. H. Morgan, ethics and practice; W. M. Kunsch, membership; C. C. Ambrosius, program; G. A. Anderson, house; J. H. Montgomery, finance; L. R. McCreight, publicity; W. J. Putnam, awards and resolutions; W. D. Gerber, public affairs; and L. C. Auby, nominating.

Panel Series Continues

Milwaukee Chapter is continuing its series of panel discussions on matters affecting the engineering profession. Latest in the series was on "Engineering Education—Generalization vs. Specialization." Educators on the panel included Dean M. O. Withey, Dean W. D. Bliss and Director G. A. Parkinson, while representing industry were E. C. Koerper, T. B. Jochem and O. Nielsen. Prof. James G. Van Vleet was moderator.

Member Society Reports 21.8% Member Growth

West Virginia Society is continuing to show steady growth, with membership up 21.8% over a year ago.

Everyone of the eleven chapters in existence a year ago can point to membership gains of from 47.8% (in the case of Clarksburg Chapter) down to 5.8% in the case of Elkins Chapter. Of the 1,140 registered engineers in the state in areas served by the chapters, total membership was well over the 54% mark, with 621 professional engineers holding membership.

Best record in that respect belongs to the newly chartered Weirton Chapter, which has ¾ of all registrants in its area on the membership rolls.

Testimonial Dinner

A testimonial dinner honoring a past president for outstanding achievement and professional development featured the June meeting of the Hudson County (N.J.) Chapter.

Honored was James M. Neri, president of A. Neri, Inc., electrical contracting and engineering firm.

Engineers Big Role In Fire Losses Told

Improperly engineered properties, because they create fire hazards, account for present day high fire losses, Dallas (Tex.) Chapter was told at a recent meeting.

Making a plea for greater participation by engineers in fire prevention was Hugh V. Keepers, assistant manager of the Fire Prevention and Engineering Bureau of Texas. Fire and loss by fire can be prevented by proper engineering and planning on the drafting board and by consulting engineers in the construction of all buildings, he asserted.

He pointed out that fire damage to even steel-constructed buildings can be high, unless proper engineering goes into their erection, because steel can melt, lose its form and even collapse in extreme heat.

Wisconsinites Honored

Awards of the college of engineering of the University of Wisconsin for distinguished service in engineering have been given two members of the Wisconsin Society, Dr. Harry K. Ihrig, of the Milwaukee Chapter, and Leon A. Smith, superintendent of Madison's water department.

Canadian Editorial States Professional Problem Simply

A border separates the United States and Canada, and their peoples give their loyalty to different governments. But the problems facing the engineering profession in the two nations apparently aren't so different.

As proof are these excerpts from a very cogent, hard-hitting editorial written by Lt. Col. T. M. Medland, executive director of the Association of Professional Engineers of Ontario, in "*The Blueprint*," official publication of the British Columbia Association of Professional Engineers.

"Never since time began has the engineer's path led into so many devious by-ways. The five major branches of engineering have been prolific and their offspring reach to every corner of industry, every stronghold of nature's bounty. Even in the world of finance the engineer has found his place, and use for his technical knowledge and ability.

> **"The profession has grown so rapidly and its members have been so deeply concerned with mastering new fields, that it may be the individual has neglected the home from which he sprung —the profession itself.**

"A profession lives and thrives in direct proportion to the completeness of its organization. Organization is for the dual purpose of exchanging ideas within the group, and to enable the profession as a whole to render a service to the community. Each of these purposes is essential to the well-being of the profession—drop one and the whole will wither and die.

> **"To carry into effect the two purposes, two types of organization are required. The interchange of data and ideas is a task that requires several types of societies, but if the profession is to render to the community the best in service it must speak with one voice. If it speaks with many voices, the community which it strives to assist will be confused, and hydra-headed efforts will produce only failure.**

"It may require readjustment of ideas, and this takes time—but time is hardly a factor when a profession is being built. A firm foundation can be built on slow and steady progress toward a firm resolve on the part of each engineer to place the profession above himself and above petty association or society prejudices and jealousies."

Chapter Meets Success In Civic Activity Effort

Another NSPE chapter has discovered that attempts to participate in civic activities not only are recognized but actually welcomed.

Madison County (Ill.) Chapter recommended to Earl Linkogle, mayor-elect of Alton, Ill., that the position of city engineer and building commissioner under the new administration be filled by any one of five qualified professional engineers. One of the names on the list was that of C. F. Abraham —and Linkogle named him to the post for a four-year term.

Encouraged by the acceptance of its suggestion, J. D. Voorhees on behalf of the chapter offered the chapter's services in reorganizing the city's department of public works and buildings to gain better results and give better service to the public. Voorhees is president of the chapter.

Monroe Elects Lewis, Winds Up Busy Season

Monroe County (N.Y.) Chapter has named its new officers to serve through May of 1950.

John V. Lewis, vice-president for the past year, steps up a notch to the presidency, succeeding Lewis J. Sforzini. Harold A. Mosher steps into the vice-presidency; L. Dilwin Jackson retains the post of secretary; Dominic D. Masucci becomes treasurer, succeeding Hiram W. Barnes, a new director. Other directors named include Joseph F. Bedard and Claude M. Bennet.

Monroe County wound up its 1948-1949 season with a late June annual social get-together at the Leiderkranz Club, Rochester. It has invited professional engineers in the neighboring counties of Livingston, Genesee, Ontario, Orleans and Wyoming — where no chapters exist—to join the Monroe Chapter until such time as a sufficient number of registrants exists to make possible formation of chapters in one or more of those counties.

Ohio Nears Its Goal On Anniversary Fund

It begins to look like the Ohio Society might reach its goal of raising $10,000 through voluntary contributions for carrying out an ambitious anniversary program.

At last report, Chairman Arthur Heiberg of the program committee had tabulated $9,357 in verbal pledges and cash received, although only about $7,000 in cash and written pledges were actually on hand in the OSPE offices at Columbus.

Psychiatrist Takes Unit On Deranged Mind Tour

A conducted tour through the minds of mentally deranged persons was the top-notch program sponsored by the DuKane (Ill.) Chapter in a meeting at Aurora.

Leading the "tour" was Dr. John C. Hudell, in charge of the acute medical and surgical services at Elgin State Hospital. He gave the engineers, who toil to create order out of chaos, an intimate glimpse of how psychiatrists toil in the same direction to restore an ill mind to health.

Kings County Seeks Reciprocal Recognition

Two important resolutions have been passed by the Kings County (N.Y.) Chapter.

One asks that written examinations be made a prerequisite for all applicants for a license to practice professional engineering. A second favors reciprocal recognition of licenses to practice professional engineering issued by legally constituted state boards of engineering examiners.

Corpus Christi Auxiliary Elects New Officers for Year

Nueces Auxiliary, Corpus Christi, Tex., has named a new slate of officers for 1949-1950.

The unit, made up of wives of members of the local chapter of Texas Society, named Mrs. E. G. Schlather president; Mrs. H. L. Scott, vice-president; Mrs. N. A. Waterbury, secretary; Mrs. W. W. Green, treasurer; and as directors, Mrs. M. H. Allen, Mrs. W. G. Staggs and Mrs. Irving Dietz, Jr.

The election was announced at a box supper meeting in the City-County Health building at which husbands were honored guests.

Colorado Installs New Officer Slate

New officers of the recently affiliated Professional Engineers of Colorado were installed at the June annual meeting following election by letter ballot of the membership.

The ceremony, a supper meeting, found Alfred J. Ryan, Denver, taking the reins as president to serve until the June, 1950, annual meeting; J. Loren Adams, Denver, being named president-elect; Samuel H. Hawkins, Denver, becoming vice-president; Paul C. von Rosenberg, Denver, taking office as treasurer; and Howard A. Lane, Lakewood, assuming the secretaryship previously held by Adams.

Named as directors were Clarence L. Eckel, Boulder; Bruce M. Johnson, James M. Johnson, Claude Hathaway, Orley O. Phillips and Jack A. Speyer, all of Denver; and Harry A. Moore, Colorado Springs.

The twelve men are the first permanent officers and directors to be elected. The interest shown by the new officers in affairs and work of the NSPE member state society was described as "pointing to a bright future."

Big assignment facing the Colorado group now is playing host to the NSPE Board of Directors when that body meets in Denver August 11, 12 and 13.

Hudson County Members Inform Students in Panel

An audience of more than 100 students, parents and faculty members were on tap at the library of Bayonne Junior College when seven members of the Hudson County (N. J.) Chapter conducted a panel discussion on engineering as a career.

The panel was the result of an invitation made to the education and professional guidance committee of the chapter by the college faculty. Participating in the panel were Harold E. Ridley, president of the Hudson County Chapter; Hugh C. Clarke, New Jersey Society president; Charles H. Morris, James F. Kelly, Richard L. Higgins and James B. Collins.

Fort Worth-ASCE Meet

Joint meeting of the Fort Worth (Tex.) Chapter with the local ASCE chapter there heard the president of the F. W. Dodge Corp., Tom Holden, give his views on the place of the engineer in a free society. Guests for the meeting were local architects and contractors.

Two West Virginia Chapters Elect

Two chapters of the West Virginia Society have named new officers.

T. Moore Jackson Chapter, Clarksburg, named Dustin F. Davis, president; C. L. Smith, vice-president; and L. W. Burnside, secretary-treasurer.

Charleston Chapter has J. V. Karrick as president; R. W. Haworth, 1st vice-president; A. A. Brown, 2nd vice-president; John A. Mason, Jr., secretary-treasurer; Arthur K. Banks, assistant secretary-treasurer; and directors, M. L. O'Neale, George W. McAlpin, W. S. Staub and W. D. Kelley.

Officers of both chapters took office June 1.

Chapter Plays Host To Municipal Officials

Mayors and other city officials from communities in LaSalle and Bureau counties were honored guests at a recent meeting of Illinois Valley Chapter which featured a discussion of community planning.

Justus L. Johnson, clerk of the appellate court and chairman of the planning commission of the city of Aurora, stressed the need for and wholesome advantages derived from proper community planning. And he was positive, he said, that the engineer should be a leader in advance planning because of his educational experience and ability. He pointed out the very natural association that should exist between engineering groups and city, county and state officials — and the potential benefits both could derive from such association.

Two Chapters Name Four To Receive Student Honors

First four graduating seniors to receive junior honorary awards of the Illinois Society have been named.

Roland D. Collins and Harlan P. Tripp were presented with certificates symbolizing their holding junior memberships in ISPE at special ceremonies conducted by Champaign County Chapter. Peoria Area Chapter, at a meeting the same night, gave similar certificates to Edwin L. Young and Leonard J. Fletcher, Jr., both of Bradley University.

Chicago Chapter was to name four students, two from Northwestern University and two from Illinois Institute of Technology, to receive like awards.

Five More Committee Heads Named by MAPE President

Five more committee chairmen have been named by Myhren C. Peterson, president of the Minnesota Association.

They include Hibbert Hill, inter-society relations; Carl Bishofberger, employment practices; E. G. Slagle, inter-professional and speakers bureau; L. N. Thompson, registration law enforcement; and J. J. Ryan, junior membership.

Peterson, who has been in office only long enough to get his feet planted squarely under the desk, is convinced already that there is "no stopping" MAPE.

"The attendance is good, the programs are stimulating," he reports. "And with the fine spirit our members are showing I can see nothing but a good year coming up if everyone will do his part as a professional man. MAPE is made up of individuals. What it amounts to as an organization depends to a great extent upon what those individuals contribute."

The MAPE state council is studying need for formulation of functional groups or committees within MAPE to handle specific subjects of interest to a limited number of members in specific fields of the profession.

Tulsa Chapter Organizes New Ladies Auxiliary Unit

Spurred by observance at the Oklahoma City annual meeting of the effectiveness of a women's auxiliary, wives of members of the Tulsa Chapter of the Oklahoma Society have organized their own such unit.

Organization of the Tulsa auxiliary culminated several years of consideration of the need for such an organization, according to Mrs. Allan Craig, temporary chairman. The organizational meeting heard Charles Gannaway, president of the Tulsa Chapter; L. D. Dresser, vice-president of the National Society; Floyd Zook, chairman of the 1950 convention; and F. W. Robson, vice-president of the Tulsa Chapter, outline need for the auxiliary and projects it could undertake.

Dayton Chapter-Architects Hold Joint Stag Picnic

Fun . . . frolic . . . food . . . festivities . . . friends.

Those were the main items on the agenda for the seven-hour combined annual stag picnic of the Dayton (Ohio) Chapter and the local unit of the American Institute of Architects at Circle Park near Dayton.

New York Lays Groundwork For Bigger 1950 Convention

Ground work already has been laid for the "mid-century" convention of the New York State Society in 1950.

Capitalizing on the success of the last state convention and its successful engineering industries exhibit, the NYSSPE convention committee has reserved facilities at the Hotel Statler for May 4, 5 and 6, and has already made arrangements to increase the number of exhibit areas from the 26 of this year to 80 in 1950. Incidentally, leaders of the NSPE member state society have proof that a whopping big and successful convention pays handsome dividends membershipwise. More than 440 inquiries for information concerning membership were received in the heels of this year's meeting.

Two other important meeting dates have been scheduled by the NYSSPE—the Fall meeting, to be held in Glens Falls September 22, 23 and 24, and the mid-Winter meeting January 27 and 28 at Rochester.

State headquarters also has announced that arrangements with the state motor vehicle bureau are being completed to enable the state society to distribute auto license plates bearing the designation "P.E."

Inter-City Rivalry Spurs Attendance at Meetings

A bitter rivalry has developed within the Galveston (Tex.) Chapter between residents of that city and members residing in Texas City.

But rather than being harmful, the rivalry is welcomed by chapter leaders. For the two cities are out to prove that their residents attend chapter meetings more regularly and in greater numbers. And the spur to attendance caused by the rivalry has been very noticeable in the size of chapter meetings.

Patents

(Continued from Page 6)

patents at exorbitant rates while they seek new prospects for their sucker list.

It should be made known that some of these patent firms arrange with common practitioners to have inquiries for patent work referred to them for which they pay a liberal commission. Their activities come very close to constituting a racket and persons not familiar with patent procedure would be well advised in limiting their patronage to local patent attorneys where they have the benefit of personal contact in contrast to a firm name.

Styling, industrial finishes and especially the diversified applications of plastics together with an awareness of quality on the part of the buying public have rendered the work of developing a new product something different from the cut and dry methods of only a few years ago.

The success of practically every new product whether it be a chain store novelty or a machine is measured in terms of production, hence manufacturing considerations must enter into its design. For example, to present a sample of a new product utilizing sand castings when obviously welded steel construction or a combination of sheet metal stampings should be utilized, creates resistance to acceptance.

The foregoing considerations may be summed up in the word "engineering."

A question which presents itself in a discussion of this kind is, "Can new unpatented products be sold?" The answer is an unqualified, "Yes."

Time Lag Cited

Usually at least eighteen months elapse between the date of filing and the date of issuance of a patent. Manufacturers in general are aware of this condition and hence will consider purchase without awaiting the issuance of a patent. To avoid entanglements, it is common practice for manufacturers to hesitate to negotiate unless an application has actually been filed. It is quite a common occurence, especially with respect to novelties, to produce tools and complete and sell a large volume before the patent has had time to issue. Royalties are paid the same as though the patent had issued.

Engineers seeking an opportunity to exercise their ingenuity frequently overlook the great interest manufacturers now take in any redesign of their product with the object of reducing costs, be it ever so little, or of adding sales appeal. Take for instance the little electric cigarette lighter used on cars which is familiar to all of us. Recently one piece of that little assembly was redesigned to effect a saving and became the subject of patent litigation. The manufacturer who owned the patent on the improvement unhesitatingly spent $25,000 to defend his title.

This is not singular when one considers how important mils become in the cost of items involving tremendous volume. It is of utmost importance to the person who is seeking to sell an improvement, to be able to state that his device is perfected. The nearer he can come to presenting a sample as it would come from the tools, the less becomes sales resistance. It must be realized that usually the individual who has the final word in the purchase of a new item is a cold realist, and any suggestions that his concern's facilities be utilized for further development is anathema to him.

Not infrequently among manufacturing corporations, the path of an employed engineer is made unnecessarily difficult through the absence of engineering instincts on the part of management. Arbitrary decisions and failure to recognize and delegate engineering functions is responsible for huge losses and many a failure.

The maintenance of professional precepts toward the group which has the greatest responsibility in the development, production and merchandising of a product, be it large or small, is reflected in dividends. It is a credit to our American way of life to be able to realize that our large corporations exemplify the truth of the foregoing. It is among small and medium size manufacturing corporations that abuses frequently occur. Among the latter, due principally to lack of technical education and appreciation for competent engineering on the part of chief executives, common drafting room and tool room functions are termed engineering, and every individual connected in any way with development is considered an engineer.

In these premises the path of a qualified engineer is difficult beyond what is represented by engineering functions. Obviously the maintenance of engineering standards and general recognition of qualified engineers will eventually correct abuses.

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WSPE Hits Slowdown In Amendment Attempt

Wisconsin Society has been experiencing stormy seas in its efforts to obtain amendment of the state engineering registration act.

Briefly, the amendments proposed would:

Provide a clearer definition of the practice of professional engineering.

Provide for Engineers - in - Training and their certification.

Require a total of eight years for qualification for registration instead of seven, with graduation giving credit for four years.

Provide that after December 31, 1951, all applicants for registration must take an examination if a graduate from a school of satisfactory standing; and that all non-graduates who have not filed an application for registration before December 31, 1949, be required to take an examination.

Require out of state engineers practicing in the state under permit to restrict their practice to within their field.

Clarify the limitation on building volume of 50,000 cubic feet to be specifically total volume.

Raise fees—the renewal to go from $5 to $10 and increases in fees for applicants also to be raised.

Embody an injunction clause to aid enforcement.

The amending measure was introduced into the state assembly (lower house) late in March, after the WSPE registration law committee had worked out final form with representatives of architectural groups and the entire state registration board. Two weeks later, at a hearing before the committee on state affairs of the assembly, fifty engineers and architects appeared to endorse the measure. There was no opposition.

Committee members apparently developed a feeling that the bill was another "fence me in" proposition, and again Dean M. O. Withey, who had led the original group in testifying on behalf of the measure, appeared to quiet thoughts that the amendments might discourage young graduates from achieving registration. When, three weeks later, the bill was passed out of committee and sent to the assembly floor, it was without recommendation. Debate subsequently was delayed for two weeks.

When it finally came, a test vote—48 to 44—again delayed action by referring the bill to the joint finance committee for action.

Gopher Chapter Claims Farthest North Record

Headquarters of Ninth District Chapter of the Minnesota Association of Professional Engineers is at Bemidji—smack in the heart of the territory where Paul Bunyan, around whom are built some of America's largest "tales," homesteaded.

But members of the chapter are sure that their claim to holding the farthest north meeting of any NSPE unit in the United States isn't one of Paul's yarns. The meeting, held in the court house at Roseau, Minn.—your maps will show you that's right under the 48th parallel—featured a ham and scalloped potato dinner, with apple pie and a Minnesota "must" beverage, coffee, and an address by a member of the Minnesota legislature, Rep. Curtiss Olson.

After the evening meeting, those in attendance travelled to nearby Lake of the Woods, bunked in northwoods cabins and were up at dawn to try their hands in catching the elusive walleyed pike. Their fishing apparently was well engineered too—most reported taking their limit.

Complex Road Building, Maintenance Job Outlined

Existence of an up-tilted sedimentary strata which carries underground water to a point near the surface complicates highway construction and maintenance in the Ft. Worth area, Ft. Worth (Tex.) Chapter learned at a recent meeting.

W. W. Finley, assistant district engineer of the Texas Highway Department's District 2, so reported in an address that pointed to geological formation which may affect not only the life but the feasibility of constructing a highway at certain routes. The uptilted strata, he said, makes a large portion of the land in District 2 "completely impossible to drain." That fact, coupled with the imperceptible but continuous expansion, contraction and shifting of underground geological formations, may create conditions under which it is impossible to maintain a good highway, Finley added.

Badger Ladies' Night

Ladies' night meeting of the Fox River Valley (Wis.) Chapter found members and their wives gathering at the Elk's Club in Kaukauna for a country style dinner, dancing and cards. In honor of the ladies' presence, all business transactions of the chapter were ignored.

Phone Listings Survey Finds 138 Violations

A survey by the ethics and practice committee of the Pittsburgh Chapter has revealed that in the 468 listings of engineers in the Yellow Section of the local telephone book, 138 are for non-registrants or "doubtfuls."

B. J. Kaiser, chairman of the committee, plans to contact the 138 listers by letter explaining the state's registration law provisions and asking voluntary discontinuance of the advertising. In many cases, he reports, the individuals concerned are not aware that they are violating any laws.

Georgia Sets Summer Meet for July 29-30

Annual Summer meeting of the Georgia Society has been set for July 29 and 30 at Columbus, with headquarters in the Ralston Hotel.

Columbus Chapter has promised those who attend will have "a wholesome outing, a little bit of plant visiting and a little bit of business." Members of the chapter have it in their minds that this year's meeting will surpass previous Summer sessions in Macon and Savannah. A fish fry, golfing and swimming, luncheons, plant and military installation tours, a cocktail party, dinner and dance have been so scheduled as to allow only the necessary time for conducting society business.

Chapter Hears Flood Control Value Figures

Damage from floods prevented by Mississippi River levees between Cairo, Ill., and Hannibal, Mo., exceeds the cost of the flood control projects—over a 50-year period varying from 1½:1 for agricultural to 20:1 for industrial projects.

Those were the figures placed before the Egyptian (Ill.) Chapter in a meeting at Christopher by Walter F. Lawlor, chief of the engineering division of the St. Louis engineer district of the Corps of Engineers. He reported there are now 18 projects underway in the district, some 90% complete but averaging 50% complete. The projects will protect 318,000 acres by construction of 276 miles of levee, requiring 115,000,000 cubic yards of earth.

Bay State Pulls Bill from Session

Massachusetts Society has withdrawn, in the interests of obtaining unanimity, its proposed amendments to the Bay State's engineering registration law, including mandatory rather than permissive licensing of engineers. The amendments will be reintroduced at the next session of the state's legislature.

The action was taken by Charles T. Chave, chairman of the legislative affairs committee of the NSPE member state society, on advice of legislative counsel. Chave explained that "the enthusiasm with which engineers are discussing the proposed changes to the present registration act augurs well for the profession."

"These discussions, generated by introduction in the General Court of House Bill 2024, have been productive of many constructive suggestions and unanimity of agreement on many of them. It is expected that the new bill as rewritten will have the unanimous support of the engineering profession."

MSPE has suggested the following revisions in the registration act:

1. A stronger reciprocity provision. The Massachusetts Society feels that since ultimate goal of reciprocity is to permit a registered professional engineer from any state or territory to practice in another state or territory, the Bay State law should provide that a professional engineer or land surveyor, registered in another state whose registration qualifications equal those of the Commonwealth, should be accorded a registration certificate upon payment of a fee of $10. MSPE argues that harsh and restrictive state laws jealously guarding state rights and discouraging reciprocal licensing are a source of grave concern to all members of the profession.

2. Provision for registration of engineers-in-training. MSPE considers this to be one of the critically important features of the new bill. There is no question that the engineering graduate today is finding it very difficult to orient himself in the profession, the society points out, and to initiate his career in a manner in keeping with the highest attributes of professional engineering. Registration as an engineer-in-training will permit the state to take a major step in the young engineers' behalf, since such registration will serve as both a privilege and a challenge.

3. Mandatory registration, replacing the permissive feature now in the law. MSPE contends that every right commands a share of responsibility. Are we to aspire to or take upon ourselves, the society asks, the right to be registered professional engineers, so certified by the legal authority of the state, and then attempt to escape the responsibility by failing to insist that all engineers qualified to practice must be registered? It gives three fundamental reasons for supporting mandatory registration — uniformity of registration laws, public safety and professional development. The bill backed by MSPE sets up a new approach to the "grandfather" problem, in that it would require all practitioners who can qualify for registration to do so in order to practice, but would permit bonafide practitioners who gain their livelihood from engineering activities but who are unable to meet registration requirements to submit evidence that they are engaged in engineering practice. They would be admitted to practice on the basis of satisfactory evidence, but they would not receive a certificate of registration as a professional engineer or be permitted to use the title.

4. Provide for a paid secretary for the board of registration.

Official publication of the Massachusetts Society, the *Massachusetts Engineer*, is continuing to plug hard for endorsement by all engineering groups of the compulsory registration provision.

Chapter Suggestion Draws Public Attention

Suggestion of the Bexar County (Tex.) Chapter that the city of San Antonio require that plans for sewers and streets in new subdivisions be prepared by a registered engineer, who would also supervise construction of facilities, is attracting much public attention.

The *San Antonio News*, in an editorial, agreed that the recommendation was worthy, declaring:

"If a subdivision is planned eventually to become a part of the city, its physical features, including streets and both sanitary and storm sewers, should fit the pattern. It might mean higher initial cost in subdivision platting, but it would also mean much higher future realty value for owners, not to mention the question of convenience and accessibility."

Akron Names Goodrich Official as President

A new set of officers has taken command of the Akron (Ohio) Chapter.

A. W. Carpenter, manager of the physical testing laboratories of the B. F. Goodrich Co., took the reins as president. Other officers include D. W. Converse, president-elect; R. D. Landon, vice-president; O. E. Hermanns, treasurer; and J. J. Konopka, secretary.

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Does This Group Set Precedent?

Here's a mark at which other civil engineering staffs in the colleges and universities of the United States can shoot. It's the 1948-1949 staff in civil engineering at Washington University, St. Louis—and all of them are registered professional engineers. Left to right are (front) D. N. Cortright, assistant professor, registered in both Missouri and Illinois; W. E. Andrews, instructor, Missouri; C. E. Lewald, assistant professor, Missouri; A. W. Brust, associate professor, Missouri; and (back row) A. W. Brune, instructor, Missouri; R. E. Flint, assistant professor, Missouri; M. M. Lemcoe, instructor, Missouri; J. W. Hubler, head of the department and professor, Missouri and Indiana; E. O. Sweetser, professor, Missouri; and A. A. Brielmaier, professor, registered in Missouri, Pennsylvania and Illinois. For the school year 1949-1950, a graduate assistant—who is an engineer-in-training with the Missouri registration board—is being added to the staff, as is an assistant professor of soil mechanics (who has applied for registration). Average age of the men shown is 39 years; they've taught for an average of 10.5 years; have an average of 7 years experience outside of teaching; hold an average of 2.1 academic degrees; hold membership (average) in 5.4 engineering societies, in which they hold or have held an average of 1.2 offices.

Doherty

(*Continued from Page* 4)

problem as helping him to learn how to think constructively in terms of any other general principle, for an adopted value is a principle. And if the educational approach I have proposed is accepted, the teaching method is clearly indicated: confront him with a practical situation the solution of which involves values, and require him to make an intelligent, well-ordered decision what to do in the situation and to justify that decision.

Every time he struggles through such a situation *in this way*, he has learned the better how to tackle the next one. And as he approaches intellectual maturity, he will come to think in terms of his adopted fundamental values as a matter of habit. In other words, he will have achieved an intelligent, professional attitude that will determine to what ends he will direct his energies and abilities. It will be a constructive attitude that impels him to take a position on important issues of policy, and not, through ignorance or lack of intellectual moorings and therefore of self-confidence, to retreat to a neutral corner as engineers are so likely to do; or worse still, to take an active position on the basis of "hunch" or opportunism.

Discounts Big Question

But one may ask, What if such an education leads him to take the wrong position? This question is important, because it is frequently asked and thus demonstrates a confusion of the very thing we are discussing — namely, fundamental values. And when carried into educational policy, this anxious point of view represents the worst kind of abberation. To ask the question implies a lack of confidence in intelligent procedure, and disavowal of intellectual freedom, or a misconception of what I mean by values. It urges partisan indoctrination on one count and the "iron curtain" on all alternatives.

As an example, it would urge that we indoctrinate students with democracy but not mention anything about other ideologies. Such proposals are bad not only for the reasons just given; they are bad also because they are educationally ineffective. In the first place, an intelligent student easily detects an attempt to indoctrinate him, and his respect and confidence are thus lost. Worse still, even if the student could be cultivated in such an intellectual greenhouse protected from every challenge of worldly weather, what will protect him when he leaves the greenhouse and must face the challenge of the outside world? If he merely accepts what persuasive teachers say, then he will presumably keep on learning the same way after he graduates. Having no deep-rooted convictions born of struggle, he is more likely to be easily swayed by the propaganda winds of the day.

What is needed in America is intellectual toughness, born of intellectual struggle, and resting upon a foundation of values built during that struggle. I have no fear of the conclusions which professional men, thus educated, would reach, for I have full confidence in intelligent procedure and place top value upon intellectual freedom. What I do fear is a teacher or an administration that insists on telling the student, in a partisan spirit, what the answers are—or what the teacher thinks they are. What is needed throughout higher education, as I view it, is more teachers and administrations that will insist on students achieving the second and especially the third stages of competence in regard to values, and will take the time and have the patience to solve the extremely difficult educational problem that is involved. For it is very far from being solved today.

But the stakes are high. The development of a new breed of professional men who not only can perform effectively in the technical part of their work, as they can now do, but also serve the additional functions I have outlined, may be a very important factor in the endurance of America. Leading educators in the professional schools of the country are today groping toward a new educational policy that would train their graduates to carry a responsibility now largely neglected—that is, to deal with the human and social factors in their professional problems. But I am proposing that a further aim, as yet scarcely touched, be added —namely, a start toward the development of a set of values that will determine the attitude of the graduate—the ends toward which he will work and live as a professional man in his full stature, as a citizen, and as an individual. And I strongly recommend that this aim be included in the education of the engineer.

Engineers Urged to Extend Credo to Human Relationships

Cooperation and understanding in industry, religion, politics and the home can be secured by the same philosophy that has enabled the engineer to produce his miracles of technology, F. Alexander Magoun, associated professor of human relations at Massachusetts Institute of Technology, declared at the spring meeting of the American Society of Mechanical Engineers.

Professor Magoun characterized the philosophy of the engineer as basically one of truth, reason and integrity, beginning with an attempt to recognize and define the problem to be solved and continuing with a sincere search for the applicable laws of the government of nature. By applying the philosophy and morality of science to the engineering of human relations we can attain happiness, understanding and cooperation among our fellow men, said Magoun, who is president of Human Relations Inc., Boston.

"The engineer's philosophy is relatively simple, yet so incredibly effective he has acquired great confidence that any results he predicts will be achieved. The engineer endeavors to apply his principles in the most effective way, and to discover what he has learned in the application thereof. Thus, the engineer has a constructive and self-correcting method because he has a self-correcting philosophy. If we are not to destroy each other, we must apply the philosophy and morality of science to the engineering of human relations."

Magoun said the engineer has replaced our original insecurity and terror of the forces of nature with understanding, respect and cooperation with the laws of nature, gained only by following a philosophy of truth, reason and integrity. Since man is as dependent upon his fellow men as he is upon nature, human problems should be approached with as much professional competence as the engineer employs in pursuing a technical problem, he declared.

"Instead of trying to understand each other we have endeavored to coerce when we felt strong and to entice when we felt weak," he said. "The result has been a false philosophy of human relations, intolerable relationships of fear, false values, superficial compromises and dishonesty which have never led to constructive solutions.

"We do not need better brains. We do not need to change human nature any more than the engineers have changed it. For cooperation and happiness we need only to adopt in industry, in religion, in politics, and in the home —giving them edge as well as new shape —the same philosophy which has taken the scientist so far, so fast, in the last three hundred years. As before, the first requirement is an honest attemp to find the facts, no matter how disagreeable. As before this requires rejecting the old dogmas which led us to reach conclusions before we even knew what questions to ask. As before, we need not only the courage to look, but the capacity to see.

"We must search in our homes, our churches, our factories and our offices for what will stand up under critical examination, and fearlessly reject all else as false. The engineer's professional philosophy has brought about the development of the physical world. It must now be widened in its application to bring about the development of men."

Chapter Investigating Three Possible Cases

Three conditions of concern to members of the profession it serves have drawn the attention of the Madison County (Ill.) Chapter.

County superintendent of schools has been notified by the chapter that many plans for new school buildings and for alterations and additions to existing school buildings are not stamped with the seal of the professional engineer preparing them—in violation of the law. Ethics and practice and registration law committees are investigating performance of engineering design work by contractors and the fact that the city engineer of Alton is not registered. In connection with the latter case, members of the committee have been contacting mayorality candidates to obtain assurances that if elected they will appoint a registrant to that important city post.

Union-Engineer Talk Stresses Differences

Complete difference between a member of a profession and a member of a trade union was outlined to members of Northern Panhandle (W. Va.) Chapter in a meeting at McLure Hotel in Wheeling.

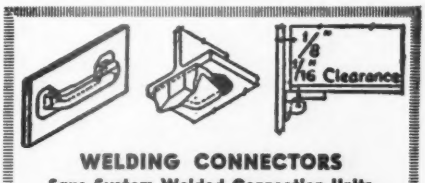
Speaker for the occasion was John Waddleton, manager of the labor relations section of the legal division of the Allis-Chalmers Mfg. Co., who emphasized the basic difference between the engineer's role as an individual and that of a trade unionist as a collective factor in a union.

The purpose of engineering societies is to advance the professional features of engineering and this is completely inconsistent with a union type program, Waddleton asserted. He declared that the engineering profession and societies are not and should not be considered as unions because of the engineer's individualism in his field of work, pointing out there is a sharp conflict between the true professional status and the completely collective action of the type practiced by unions.

Milwaukee Hears Panel On Engineer in Industry

A panel discussion on the registered engineer in industry featured a recent meeting of the Milwaukee (Wis.) Chapter, with the program under direction of the ethics and practice committee.

Participating in the panel were Robert Teece, method and cost analyst, Harnischfeger Corp.; Clyde R. Braun, engineer administrative section, steam turbine division, Allis-Chalmers Mfg. Co.; and P. B. Harwood, vice-president in charge of engineering, Cutler-Hammer, Inc. George A. Sievers, a member of the chapter and chairman of the committee, acted as moderator.



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Younger Engineers Seen as White Hope For Better Living

Upon the shoulders of today's engineering students—the engineers of tomorrow—and members of their generation must fall the job of devising ways and means to better living. It can't be done by the engineers of today because too many of the elders of this generation "have hardened in a mold of creative materialism in which human happiness as a goal is a secondary consideration, they are set in their ways, they have crystallized opinions and beliefs and resist giving up any of their old routine habits."

That picture of the current status of the engineering profession was given members of the student chapter of the Oklahoma Society at Oklahoma A&M College by Fred G. Fellows, Ponca City, 2d vice-president of OSPE. Declaring he was not belittling the natural sciences, Fellows declared that the need is "for more, not less of science and engineering providing they are mixed with copious doses of human understanding and with human happiness as the deliberate goal—not just chance.

"Engineers must overcome that timid reluctance to take an active part in human affairs, the civic, political, religious and educational activities in their several communities," he continued. "They must become social-minded in appraising the results their discoveries and works will have on humanity and devise ways and means to cushion the impact on the lives and happiness of the people. They must realize that new scientific discoveries or the broadening of those we already have may revolutionize our whole pattern of life.

> **"Engineers mst realize that the greatest and most precious resource we have is our people. They must realize that the machine was made for man and not to attempt to make man over for the machine. They must realize that man is 'a going concern,' that he is constantly making new rules, revising his formulae and changing his mold while on the march of time.**

"But can all of these realizations be brought home to all engineers? The answer is NO!"

Fellows reminded the students that the "Chief Coach" is calling from the field a lot of scientists and engineers who have been responsible for developments during his generation. Some remain to sit on the sidelines as coaches for the young engineers, and like all coaching some of it will be good and some of it bad.

"The important thing is that you have the ball—don't fumble it by disregarding human rights, rather do everything within your power to encourage life to grow, to expand, to bloom and to have a fruitful, satisfied existence," Fellows counseled. "Don't let anything dampen your enthusiasm for learning and exploring the facts of life. Don't let set ideas and autocratic opinions dam up your youthful curiosity to get at the real truths. You have the will, the energy and the incentive to keep in touch with life and make humanity the goal of your human endeavor."

Single Water Conservation Direction Need Outlined

One overall agency is needed to coordinate the work of four separate organizations—three federal and one state—in Texas water conservation, Trigg Twichell, past-president of the Texas Society, told Piney Woods Chapter at a meeting in Nacogdoches.

Producing figures covering rainfall, run-off, storage, power and irrigation uses of water in the state, Twichell declared the future of Texas agricultural and industrial expansion is largely dependent upon adequate water supply. He urged that engineers take an active interest in the total use of water resources of the state, and, in collaboration with lawyers, see that practical laws are written.

Twichell is an engineer with U. S. Geological Survey in Austin.

Miami Chapter Reports Father-Son Combination

Miami (Ohio) Chapter has turned up another of those father-son membership combinations that are beginning to appear in NSPE circles.

Wallace Adams, the father in this case, is president of Miami Chapter, which makes it only natural that his son, Richard Adams, should join up as soon as he obtained his engineer-in-training status. Both father and son reside in Middletown, Ohio.

New Chapter Secretary

New secretary of the Sabine (Tex.) Chapter is Fred Sandelin, Nederland, with the consulting engineering firm of L. V. Norris. Sandelin succeeds W. R. Pickens, Beaumont, who has resigned to accept assignment with the employee relations department of Gulf Oil Co. at Pittsburgh, Pa.

Westchester Reelects Garfield as President

New officers of the Westchester County (N. Y.) Chapter have been named.

President Chester A. Garfield was re-elected for another term. His fellow officers will be Lloyd C. Medcalf, 1st vice-president; Richard M. McLaughlin, 2nd vice-president; Raymond Willsea, secretary; Wilson W. Scott, treasurer; and directors, Edward A. Newman, Charles W. Ryan and Richard C. Kleinberger.

May meeting was the regular dinner dance. A turkey dinner was the main food attraction.

Communist Danger Pictured to Harrisburg

Communism is gaining a stronger foothold daily and must be stopped by the individual effort of all Americans.

That was the warning issued to the Harrisburg (Pa.) Chapter at a recent meeting by Lt. Gov. Strickler of Pennsylvania in speaking on subversive activities in government. He declared that eight or ten men in key positions in a city like Philadelphia could cripple that city, and that when you consider presence of 35,000 communists in the nation, the potential damage they might do is tremendous.

Ex-Cleveland Head Gets Sculpture Honors

Thirty-four years ago, Sol A. Bauer set out to carve a name for himself.

That he succeeded is evidenced by the fact that visitors to a special show at the Cleveland Museum of Art spent a good many hours studying the professional engineer's "Processional," winner of the first prize for a group of two wood sculptures.

Bauer, a past-president of the Cleveland Chapter of the Ohio Society, started his whittling hobby as a youngster. From the time he got his first knife, he was busy carving initials from soft peach stones for watchfobs for his playmates. His first figure composition dates back to 1915. Now he spends 15 hours a week relaxing from his engineering duties by sculpturing in wood.

Bauer's capturing first place in the Cleveland show, which closed in June, wasn't easy. A total of 1,364 objects by 447 artists were on exhibit—the largest number ever seen in the art event.

Certificate Trouble? Then Match This One

Don't rush to blame NSPE's Washington office for all the fault if a membership certificate you order is slow in arriving. The blame isn't always placable there.

On May 23, 1949, the Washington office received from the post office a certificate mailed May 11, 1935—more than 14 years before—to a former member in Brooklyn. Despite the fact that the mailing tube was marked "first class" and bore the 1935 cancellation. other postmarks indicated it had not arrived in Brooklyn't Pratt Station until May 17, 1949, for delivery.

There was no explanation as to where the certificate had been in the 14 years it took the post office to try to deliver it.

Illinois Charters New Chapter at Rockford

All state officers and many guests from neighboring chapters were present when the new Rockford (Ill.) Chapter received its Illinois Society charter.

The new unit stands, according to ISPE President James M. Whelan, as a tribute to the "unselfish cooperation" of the Rock River Chapter—under the direction of President H. F. Walder—in organizing a new state affiliate in the state's third largest city. An initial membership in the chapter of 50 was described as "just a starter," since the city has many specialized industries offering employment to engineers.

Monroe Creates Five Special Activity Units

Five special committees to investigate projects of special importance to the city of Rochester have been set up by Monroe County (N. Y.) Chapter.

One, on the development of a metropolitan water authority in Monroe county, has Williams S. Little as chairman. Thorold G. Smith chairmans the second, on use of the subway in connection with the arterial road system or its development and improvement as a means of rapid transportation. Another, on sponsorship of a digest of traffic rules, is headed by Walter C. Strakosh. Campaign for pollen control committee has as its chairman Oscar P. Marth. And the fifth, on establishment of engineering clinics, has Alfred I. Hess as chairman.

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